

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A mutant of the soluble form of ~~EC 1.1.99.17~~ EC 1.1.5.2 also known as pyrroloquinoline quinone (PQQ) PQQ-dependent soluble glucose dehydrogenase (s-GDH) said mutant characterized in that it has an at least two-fold increased substrate specificity for glucose, as compared to at least one other selected sugar substrate.
2. (Original) The mutant according to claim 1 further characterized in that said selected sugar is selected from the group consisting of maltose and galactose.
3. (Original) The mutant according to claim 1 further characterized in that said selected sugar is maltose.
4. (Original) The mutant of PQQ-dependent s-GDH according to Claim 1 further characterized in that said substrate specificity for glucose is improved at least 3-fold.
5. (Original) The mutant of PQQ-dependent s-GDH according to Claim 1 further characterized in that said substrate specificity for glucose is improved at least 5-fold.
6. (Currently amended) A mutant of the soluble form of ~~EC 1.1.99.17~~ EC 1.1.5.2 also known as PQQ-dependent soluble glucose dehydrogenase (s-GDH) said mutant characterized in that
the substrate specific reactivity towards glucose is essentially comparable to that of the wild-type enzyme, and
the substrate specific reactivity towards maltose is 30% or less as compared to the wild-type enzyme.

7. (Original) The mutant according to claim 6 further characterized in that said substrate specific reactivity towards maltose is 20% or less as compared to the wild-type enzyme.

8. (Currently amended) The mutant of a PQQ-dependent s-GDH according to claim 6 further characterized in that the wild-type s-GDH is isolated from a strain of ~~the~~ *Acinetobacter* selected from the group ~~species-group~~ consisting of *A. calcoaceticus* and *A. baumannii* ~~A. baumannii~~.

9. (Currently amended) A mutant protein of PQQ-dependent s-GDH according to claim 6 comprising at least one amino acid residue substitution at an amino acid position selected from ~~a~~ the group consisting of ~~comprising~~ positions 348 and 428 of the corresponding s-GDH wild-type sequence (SEQ ID NO:24) known from *A. calcoaceticus*.

10. (Original) The mutant protein of claim 9 further characterized in that the amino acid residue threonine at position 348 is substituted with an amino acid residue selected from the group consisting of alanine, glycine and serine.

11. (Original) The mutant of claim 10 further characterized in that at least one of the following amino acid residues 16, 116, 120, 127, 169, 171, 177, 227, 255, 277, 299, 317, 355 and 438 is also substituted.

12. (Original) The mutant of claim 9 further characterized in that asparagine at position 428 is substituted with an amino acid residue selected from the group consisting of leucine, proline and valine.

13. (Currently amended) A mutant protein of PQQ-dependent s-GDH according to claim 1 comprising at least two amino acid residue substitutions, said substituted amino acid positions being selected from the group consisting of positions 16, 22, 76, 116, 120, 127, 143, 168, 169, 171, 177, 227, 231, 255, 277, 295, 299, 308, 317, 348, 355, 422, 428 ~~and 438~~ and 438 of the corresponding mature *A. calcoaceticus* ~~soluble~~ PQQ-dependent s-GDH (SEQ ID NO:24), characterized in that at least one of the amino acid residues, T348 or N428, is replaced with another amino acid.

14. (Original) The mutant protein of claim 13, further characterized in that at least two of the amino acids in positions 76, 348 and 428 are substituted.

15. (Original) The mutant protein of claim 13 comprising substitutions of the amino acid residues at positions 348 and 428.

16. (Currently amended) A mutant protein of PQQ-dependent s-GDH comprising the amino acid sequence of TrpProXaaValAlaProSer ~~WPXaaVAPS~~ (SEQ ID NO: 1), wherein said Xaa residue is an amino acid residue other than threonine.

17. (Original) The mutant protein of claim 16 further characterized in that said Xaa residue is glycine.

18. (Currently amended) A mutant protein of PQQ-dependent s-GDH comprising the amino acid sequence of ThrAlaGlyXaaValGlnLys ~~TAGXaaVQK~~ (SEQ ID NO: 2), wherein said Xaa residue is an amino acid residue other than asparagine.

19. (Original) The mutant protein of claim 18 further characterized in that said Xaa residue is proline.

20. (Currently amended) A mutant protein of PQQ-dependent s-GDH comprising the amino acid sequence of AlaAspGlyXaaAsnGlyLeu ~~ADGXaaNGL~~ (SEQ ID NO: 3), wherein said Xaa residue is an amino acid residue other than glutamine.

21. (Original) The mutant of claim 20 further characterized in that said Xaa residue is selected from the group consisting of aspartic acid, glutamic acid, methionine, proline, serine, alanine or glycine.

22. (Currently amended) An isolated polynucleotide encoding the s-GDH mutant protein according to any one of claims 9 to 21.

23. (Original) An expression vector comprising an isolated polynucleotide as defined in claim 22 operably linked to a promoter sequence capable of promoting the expression of said polynucleotide in a host cell.

24. (Original) A host cell comprising the expression vector of claim 23.
25. (Original) A process for producing s-GDH variants comprising culturing the host cell of claim 24 under conditions suitable for production of the enzyme variants.
26. (Original) An expression vector comprising an isolated polynucleotide as defined in claim 22 operably linked to a promoter sequence capable of promoting its expression in a cell-free peptide synthesis system.
27. (Currently amended) A process for producing s-GDH variants comprising expressing the expression vector of claim 26 ~~with the construct of claim 26~~ in a cell-free peptide synthesis system under conditions suitable for production of the said enzyme variants.
28. (Currently amended) An improved method of detecting, determining or measuring glucose in a sample using a s-GDH mutant according to any one of the proceeding claims, said improvement comprising a more specific detection of glucose.
29. (Original) The method of claim 28 further characterized in that said detection, determination or measurement of glucose is performed using a sensor or test strip device.
30. (Currently amended) A device for the detection or measurement of glucose in a sample comprising a s-GDH mutant according to any one of claims 1- 29 and other reagents required for said measurement.